



## Institute for Agriculture and Trade Policy

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The Institute for Agriculture and Trade Policy promotes resilient family farms, rural communities and ecosystems around the world through research and education, science and technology, and advocacy.

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# As Minnesota Grows Warmer

By Dennis Keeney

The January 9 announcement from National Oceanic and Atmospheric Administration was frightening. U.S. and global annual temperatures are now approximately one degree Fahrenheit warmer than at the start of the 20th century and the rate of warming has accelerated over the past 30 years. The past nine years have all been among the 25 warmest on record. Five states, including Minnesota, had their warmest December on record, and no state was colder than average in December.

What does this mean for Minnesota? Its agriculture, forests and prairies, even its lakes are in jeopardy of changing in ways we do not yet understand. We only know for sure that change is coming. And most will not be happy with it. You, me and more certainly our children and grandchildren will all be affected.

Minnesota is in a unique climatic location on the continent. We are at the crossroads of three biomes, or unique habitats of plants, soils and climate. To the north are the beautiful boreal forests, spruce and fir in the lowlands and aspen and birch in the highlands. Travel south and the climate warms and we get the hardwoods such as elm, maple and ash. Further south we find the grasslands that extend into Iowa.

These habitats depend on temperature and rainfall. If warming continues Minnesota will certainly have a different landscape. We could have a drier and hotter climate that would make us look more like our western neighbors do now. Rice County turning into western Nebraska?

No industry sector will be affected more by climate change than farming. If our climate continues to warm, agriculture in Minnesota could become very different, very soon. With drier weather, the verdant corn and soybeans could disappear, except where there is irrigation. Dry land crops such as wheat and grain sorghum might become more common. The dairies and hog lots that rely on corn and soybeans for feed will be less viable, as will the ethanol plants and other huge investments made to take advantage of our current climate advantages.

As the Minnesota climate changes, agriculture will have to adapt to new weeds, bugs and plant diseases. While overall it may become drier, huge storms will challenge farmers to keep erosion in check and pollutants out of streams and lakes. It will take time to adapt. Science can develop new crops, and find ways to

farm more efficiently. But there are indications that climate change is accelerating faster than our industries can change.

Minnesota will not be able to cash in on its tourism chips either. Drier weather coupled with more runoff will lower water quality and quantity. Who wants to go to the Northwoods when they look like the prairies of Goodhue County?

Can we slow this warming down? Climatologists tell us that the carbon dioxide, methane and nitrous oxide that human activity has added to the atmosphere will take a long time to dissipate. So we need to act immediately to slow down our emissions of global warming gases.

And agriculture can play an important role. Our farmers are already doing much to help out, including using less energy while keeping more carbon in the soil. They are using no tillage farming that leaves crop residues on the land. This adds carbon to the soil and keeps erosion in check. They are also growing more trees on the edges of streams.

Perhaps most importantly, farmers are driving the development of biofuels specifically capturing energy from grass and trees. These perennial grasses grow on little outside energy in the form of fertilizers, and produce far more energy than what they use. We need to accelerate this shift from corn-based biofuels to cellulosic forms of energy for our cars and industries, which is currently hindered by manageable technological hurdles.

There are promising indications that Congress is beginning to act. The just introduced climate bill sponsored by 2008 Presidential contenders Senators John McCain and Barack Obama, along with Senator Joe Lieberman, would cut emissions by two percent a year and bring us to 1990 levels by 2020. After Bush Administration's rejection of the Kyoto treaty on climate change, this legislation would set a strong standard for the rest of the World. And of course climate change is a global problem, and will require global cooperation.

This year as we have done before, our family will meet in Cable Wisconsin for our Birkebeiner skiing weekend. Will we have enough snow? Will my grandchildren be able to take part in this great experience when they want to take their families to ski?

Let's get on with it. Our global future and our progeny's future depend on action today, even if it takes many years to show the benefits. ■

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